THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KAZUHITO TSUTSUMI

Appeal No. 1996-1758
Application No. 08/358,050[1]

ON BRIEF

Before HAIRSTON, JERRY SMITH and RUGGIERO, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1, 3, 4, 10-14, 19, and 24-29. Pending claims 6-9 stand withdrawn from consideration as being directed to a

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[1] Application for patent filed December 16, 1994. According to the appellant, the application is a continuation of application 08/026,111, filed March 1, 1993, now abandoned, which is a continuation-in-part of application 07/774,103, filed October 11, 1991, now abandoned.

nonelected invention. Claims 2, 5, 15-18, and 20-23 have been canceled.

The claimed invention relates to a single gate thin film transistor which, according to pages 4-7 of Appellant's specification, is structured to moderate the electric field concentration in the vicinity of corner portions of the gate electrode.

Claim 1 is illustrative of the invention and reads as follows:

1. A single gate thin film transistor, comprising:
a gate electrode formed on an insulating layer and having opposite sidewalls;

a dielectric layer formed on said insulating layer and covering upper and side surfaces of said gate electrode, said dielectric layer overlying said gate electrode having a thickness t; and

a polycrystalline silicon layer formed on an upper surface of said dielectric layer, said polycrystalline silicon layer having a channel region formed above said gate electrode and having a pair of impurity regions formed respectively at opposite sides of said channel region, said channel region having a length equal to or greater than the length of the gate electrodes, and a shape of said channel region having no corners or edges conforming to a shape of the sidewalls of the gate electrode,

an interface between said dielectric layer and said polycrystalline silicon layer lying in a single plane throughout a first region beneath said channel region and a second region extending beyond each said sidewall of said gate

electrode by a distance greater than said thickness t of said dielectric layer, wherein

said dielectric layer comprises a first insulating layer formed in contact with said side wall of said gate electrode and has a film thickness equal to that of said gate electrode and a second insulating layer has a flat surface formed on the surface of this first insulating layer.

The Examiner relies on the following references:

Wu	5,266,507	Nov. 30, 1993 (filed May 18, 1992)
Ishikura (Japanese Kokai)[2]	58-153371	Sep. 12, 1983
Poleshuk (European)	0,102,802	Mar. 14, 1984

Claims 1, 3, 4, 10-14, 19, and 24-29 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Poleshuk, Ishikura, and Wu.

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the Briefs[3] and Answer for the respective details.

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[2] A copy of the translation provided by the U. S. Patent and Trademark Office, March 1996, is included and relied upon for this decision.

[3] The Appeal Brief was filed December 27, 1995. In response to the Examiner's Answer dated January 31, 1996, a Reply Brief was filed February 23, 1996 which was acknowledged and entered by the Examiner on March 6, 1996.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the Examiner and the evidence of obviousness relied upon by the Examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellant's arguments set forth in the Briefs along with the Examiner's rationale in support of the rejection and arguments in rebuttal set forth in the Examiner's Answer. It is our view, after consideration of the record before us, that the collective evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1, 3, 4, 10-14, 19, and 24-29. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine,

837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert.

denied, 475 U.S. 1017 (1986); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

As indicated by the cases just cited, the Examiner has at least two responsibilities in setting forth a rejection under 35 U.S.C. § 103. First, the Examiner must identify all the differences between the claimed invention and the teachings of the prior art. Second, the Examiner must explain why the identified differences would have been the result of an obvious modification of the prior art. In our view, the Examiner has not properly addressed his first responsibility so that it is impossible that he has successfully fulfilled his second responsibility.

With respect to independent claims 1, 4, 10, 14, 19, and

24-29, the Examiner proposes to modify the combined transistor structure teachings of Poleshuk and Ishikura by relying on Wu to supply the missing offset drain structure. The Examiner, however, has never attempted to show how each of the claimed limitations is suggested by the teachings of the applied prior art. Further, the Examiner's statement of the grounds of rejection is lacking in any rationale as to why the skilled artisan would combine Poleshuk and Ishikura. Rather than pointing to specific information in Poleshuk and Ishikura that would suggest their combination, the Examiner instead has described piecemeal similarities between each of the references and the claimed invention. Nowhere does the Examiner identify any suggestion, teaching, or motivation to combine the Poleshuk and Ishikura references nor does the Examiner establish any findings as to the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that would support a proper obviousness analysis. See, e.g., Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568,
37 USPQ2d 1626 (Fed. Cir. 1996).

Further, it is our view that the Examiner's proposed addition of Wu to the combination of Poleshuk and Ishikura does not cure the deficiencies of either reference, singly or in combination. Even assuming arguendo that the recited limitations of the independent claims are found in the various references, we find no motivation for modifying any combination of Poleshuk and Ishikura in the manner suggested by the Examiner. There is nothing in the disclosures of either Poleshuk or Ishikura to indicate that current leakage, the problem addressed by the offset drain structure of Wu, was ever a concern. Further, the Examiner's finding (Answer, pages 4 and 5) that the channel length to gate electrode length relationship is a matter of obvious design choice is not supported by the record. The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). In our view, the only basis for applying Wu's teachings to Poleshuk and Ishikura comes from an improper attempt to reconstruct Appellant's invention in hindsight.

In view of the above discussion, we are in agreement with Appellant's stated position in the Briefs that the Examiner has failed to establish a prima facie case of obviousness. As Appellant argues at page 11 of the Brief:

> . . . the rejection is erroneously predicated upon an identification of different features in disparate references, and an announcement of the obviousness conclusion.

Accordingly, since all the limitations of the independent claims are not suggested by the applied prior art, we cannot sustain the Examiner's rejection of independent claims 1, 4, 10, 14, 19, and 24-29 and claims 3 and 11-13 which depend therefrom under 35 U.S.C. § 103.

In summary, we have not sustained the Examiner's rejection of any of the claims under 35 U.S.C. § 103. Therefore, the decision of the Examiner rejecting claims 1, 3, 4, 10-14, 19, and 24-29 is reversed.

REVERSED

KENNETH W. HAIRSTON)

Administrative Patent Judge)	
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)	BOARD OF PATENT
JERRY SMITH)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
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